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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,977	10/10/2000	Hui Liu	05158.P001	4765

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EXAMINER

NGUYEN, STEVEN H D

ART UNIT

PAPER NUMBER

2665

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/685,977

Applicant(s)

LIU ET AL.

Examiner

Steven HD Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 October 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/27/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 and 7.                      6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-5, 22-23 and 27-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Alamouti (USP 5933421).

Regarding claims 1, 3-5, 22-23 and 27-31, Alamouti '421 discloses (Figs 1-4 and col. 1, lines 25 to col. 29, line 5) a cellular network comprising a plurality of subscribers communicating with the base station using orthogonal frequency division multiple access (OFDMA) (Fig 1); at least one base station having logic to coordinate multiple-access and information exchange between the at least one base station and the plurality of subscribers, the logic selecting a set of OFDMA traffic channels from a plurality of candidate OFDMA traffic channels based on feedback channel information including channel fading and noise and interference collected from the plurality of subscribers in response to a received signal from the base station via a feedback channel for assigning these channels for the subscriber by using spatial multiplexing (See col. 24, lines 23-47, the RU "subscriber" measures the RSSI and SINR of the channels in response a received signal from the base station and reports these measured back to the base station which uses these reports for allocating the channels for the RU by using SDMA) and selecting a combination of modulation and coding schemes based on SINR for each accessing subscriber (Col. 14, lines 32-45).

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 7-21 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti (USP 5933421) in view of Larsson (USP 5956642).

Regarding claims 2, 7-21 and 32-36, Alamouti '421 discloses (Figs 1-4 and col. 1, lines 25 to col. 29, line 5) a cellular network comprising plurality of base station for receiving a feedback signal of the channels such SNIR and gain from the subscribers in response to a receive signals such pilot tone "sound signal" and using this information for assigning the channels to the subscribers based on QOS (Col. 24, lines 24-47 and col. 22, lines 20-24) selecting a combination of modulation and coding schemes based on SINR for each accessing subscriber (Col. 14, lines 32-45); a plurality of base stations coordinating to perform the traffic channel assignment (col. 24, lines 13-24) and adjusting weight of the downlink signal based on the feedback of the subscriber (col. 20, lines 25-34). However, Alamouti fails to discloses calculating spatial gains of uplink and downlink based on responses of the spatially separated receivers at the base station wherein channel condition regarding estimating channel gains and interference and antennas; estimating SINR for uplink and downlink signals for using to assigning the traffic channels; estimating SINR for uplink and downlink for accessing and active subscribers. In the same field of endeavor, Larsson discloses (Figs 1-8 and col. 2, lines 2 to col.

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18, lines 19) a system for calculating spatial gains of uplink and downlink based on responses of the spatially separated receivers at the base station wherein channel condition regarding estimating channel gains and interference and antennas; estimating SINR for uplink and downlink signals for using to assigning the traffic channels; estimating SINR for uplink and downlink for accessing and active subscribers. (Fig 8, Ref 909 for determining uplink and 902 for determining downlink which is feed back to the transmitter via link 908; 914 for determining the best channels to be used by channel allocator for assigning to the communication between the receiver and transmitter); omni-directional antenna for transmitting signals (Fig 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for determining the uplink and downlink gain , SNIR as disclosed by Larsson into Alamouti '421. The motivation would have been to reduce co-channel interference on the link.

5. Claims 6 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti (USP 5933421) in view of Alamouti (USP 6600776).

Regarding claims 6 and 24-26, Alamouti '421 discloses (Figs 1-4 and col. 1, lines 25 to col. 29, line 5) a cellular network comprising plurality of base station for receiving a feedback signal of the channels such SNIR and gain from the subscribers in response to a receive signals such pilot tone "sound signal" and using this information for assigning the channels to the subscribers (Col. 24, lines 24-47). However, Alamouti fail to disclose the subscriber uses the allocated channel for conveying the packets using MAC. In the same field of endeavor, Alamouti discloses a method and system for assigning a channels for conveying the data packets

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between the base and mobile based the feedback information on the channels and using MAC (col. 22, lines 65 to col. 23, lines 15 and col. 45, lines 15-17, col. 54, lines 1-8).

Since, Alamouti '776 suggests a PWAN system for conveying packet and using MAC. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply MAC and packetizing for conveying information between the base and subscriber as disclosed by Alamouti '776 into Alamouti '421. the motivation would have been to provide a universal system.

### *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jones (USP 6487253) discloses OFDM channel estimation.

Barton (USP 6633614) discloses OFDM system.

Borst (USP 6119011) discloses a system for dynamic channel assignment.

Rahman (USP 6445916) discloses a method and system for evaluating QOS.

Heath (USP 6298092) discloses a method and system for controlling communication parameters.

Jones (USP 6442130) discloses a system and method for interference cancel.

Chuang (USP 6052594) discloses a system and method for dynamically channel assignment.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (703) 308-8848. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on (703) 308-6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, consisting of a stylized 'S' and 'N' intertwined, with a long horizontal line extending to the right.

Steven HD Nguyen  
Primary Examiner  
Art Unit 2665  
5/27/04